



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,210	12/10/2003	Robert John Allen	YOR920030406US1 (8728-649)	8018
46069	7590	11/22/2005	EXAMINER	
F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			DINH, PAUL	
			ART UNIT	PAPER NUMBER
			2825	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,210

Applicant(s)

ALLEN ET AL.

Examiner

Paul Dinh

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 16-27 and newly added claims 28-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 16-27 and newly added claims 28-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) *None*
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Paul Dinh

DETAILED ACTION

This FINAL OFFICE ACTION is a response to the amendment filed on 11/7/05.

Claims 1-11, 16-27 and newly added claims 28-30 are pending.

Claim Objections

Claims 1, 16, and 28 are objected to because “outputting a transformed hierarchical VLSI design” is not clearly described in the specification. See 37 CFR 1.75 (d).

Claim 28 is objected to because “a move operation, a split operation or a merge operation” is an incomplete claim structure, i.e., move/split/merge what.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-12, 16-27 and new claims 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by the prior art of record Russell et al (USP 5519628)

(Currently amended claims 1, 16)

Representing a structure of a hierarchical VLSI design as a graph comprising design objects (one or more of fig 2, 13-25, 31, 55-56, 63);

Specifying a transformation behavior applied to the design objects (one or more of: col 2 lines 21-30, col 4 lines 55-59, col 5 lines 16-18, 33-40, col 18, fig 15-22, 31, 38-56, 62-63);

Processing, top-down, the graph to perform the transformation behavior on the hierarchical VLSI design (one or more of: col 34 line 23+, col 8 line 47 to col 9 line 52, col 18 lines 24-65, fig 15-22, 31, 38-56, 62-63); and

Outputting a transformed hierarchical VLSI design (one or more of: fig 1, 13, 27, 3, 54, 62)

Art Unit: 2825

(New claim 28)

Representing a structure of a hierarchical VLSI design as a graph comprising design objects (one or more of fig 2, 13-25, 31, 55-56, 63);

Specifying a transformation behavior applied to the design objects (one or more of: col 2 lines 21-30, col 4 lines 55-59, col 5 lines 16-18, 33-40, col 18, fig 15-22, 31, 38-56, 62-63);

Processing the graph top-down beginning with the root cell of the graph to perform the transformation behavior on the hierarchical VLSI design (one or more of: col 34 line 23+, col 8 line 47 to col 9 line 52, col 18 lines 24-65, fig 15-22, 31, 38-56, 62-63), wherein the transformation behavior resolves a boundary condition of the hierarchical VLSI design by performing a move operation, a split operation or a merge operation to adjust the structure of the hierarchical VLSI design (one or more of: col 1 line 65, col 8 lines 55-60, col 13 line 67, col 18 lines 20, 34-35, col 31 line 44, col 33 lines 48-55, fig 61, 63B; and

Outputting a transformed hierarchical VLSI design (one or more of: fig 1, 13, 27, 3, 54, 62)

(Claims 2, 17) wherein the processing further comprises searching for an isomorphic structure (Col 33 line 51).

(Claims 3, 12, 18, 27) wherein the graph describes a plurality of scopes, wherein each scope comprise an internal node and a leaf node (col 1, fig 55)

(Claims 4, 19) wherein the graph (fig 2, 13-25, 31, 55-56, 63) is based on a point set interaction between structures of the hierarchical very large scale integration design.

(Claims 5, 20) wherein the graph is based on symmetry groups between structures of the hierarchical VLSI design wherein the graph represents a circuit substructure (summary, fig 54-58).

(Claims 6, 21) wherein an attribute (col 29) is attached to a design object, the attribute having a user-defined mapping between an attribute transformation and a design object transformation (col 29, 33).

Art Unit: 2825

(Claims 7, 22) wherein processing, top-down, comprising transferring information from a child graph to a parent graph, wherein a node in the parent graph represent an instance of the child graph (fig 5-6, 14-16, 55).

(Claims 8, 23) wherein processing, top-down, the graph comprises resolving boundary conditions (fig 11, 55, 63-64, 72, col 6), recursively, by adjusting a parent cell, beginning with a root cell of the graph (fig 11, 55, 63-64, 72)

(Claims 9-11, 24-26, 29-30) wherein each cell is represented by a plurality of connected least enclosing orthogonal point sets (fig 7-11, 31-37, 57, 61, 64, 69, 72); determining an interaction between the least enclosing orthogonal point sets (fig 7-11, 31-37, 57, 61, 64, 69, 72); and determining a decomposition of the cell according to the interaction; wherein processing, top-down, further comprises cloning by expression using a result of the decomposition to produce a cell definition (fig 7-11, 31-37, 57, 61, 64, 69, 72).

Applicant's arguments with respect to claims 1-12, 16-27 and new claims 28-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2825

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is 571-272-1890. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul Dinh
Patent Examiner

A handwritten signature in black ink that reads "Paul Dinh". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.